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MEMORANDUM

RELATIVE TO THE

PROBABLE NUMBER AND AGES OF THE ARMY AND
NAVY SURVIVORS OF THE CIVIL WAR.

U. S. Military Secretary's Office

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MEMORANDUM

RELATIVE TO THE

PROBABLE NUMBER AND AGES OF THE ARMY AND NAVY SURVIVORS OF THE CIVIL WAR.

The basis of all estimates as to the number of beneficiaries under and the cost of any proposed civil-war pension law must be the determination of, or an estimate of, the number of the survivors of that war at the present time, and of the number who will be surviving at various periods in the future, until none shall remain. Such an estimate was prepared by the Record and Pension Office in March, 1890, at the request of the chairman of the Committee on Invalid Pensions, House of Representatives, for use in the consideration of various proposed measures which culminated in the act approved June 27, 1890. That estimate was reviewed in April, 1896, with a view to determining whether, in the light of more recent data, any change should be made in it. As a result of that review, the conclusion was reached that there was no ground for the belief that a more accurate estimate than that of 1890 could have been made either then or in 1896; and it is not believed that a more accurate estimate can be made now. The estimate made in 1890 and the remarks made thereon in 1896 were substantially as follows:

It should be stated in advance that any estimate of the number and ages of the surviving veterans of the civil war can not be more than approximately correct, for the reason that the data on which to base such an estimate are deficient in two very important particulars, viz: First, the actual number of individuals in service has never been, and can not be, officially determined; and second, the numbers of men of different ages, at the date of entry into service or at any given date during the war, have never been ascertained; nor can the missing data be supplied without a laborious search of the many thousands of original rolls and other records filed in the War and Navy Departments—a work which would require years for its completion.

Moreover, if the exact number and ages of the survivors at the close of the war were known, the problem of determining the number now living and the probable duration of life for each group of ages would still be involved in difficulty, for no life table has ever been constructed which is based upon such a class of lives as that furnished by the veterans of the civil war. While it is the generally accepted opinion that the expectation of life of men of this class is less than that of men of the same ages who have never been exposed to the shock of battle and the hardships and privations of field, camp, and prison, on the other hand, it has been very ingeniously

urged that, by the operation of the law of the survival of the fittest, the reverse is actually the case, for the reason that the individuals of little endurance and tenacity of life, whose early death materially shortens the average length of life among civilians, have long since been eliminated from the class to which the veterans belong, having succumbed either to the hardships and dangers of the war or their subsequent results. Thus, it is claimed, the survivors have become a selected class, whose average duration of life is likely to be greater than that of an equal number of nonveterans of the same ages, who have not been subjected to this weeding-out process.

It will be readily seen, then, that the problem presented is incapable of an exact solution, and that the results obtained can be nothing more than approximations. But it is also evident that an approximation which is reached after a careful study of all the data available, meager though they are, is of much greater utility than the loose estimates and wild guesses which have heretofore passed current in discussions of this question. Moreover, it is believed that sufficient information is at hand to enable a calculation to be made which can not be very far from correct, and which may be safely used for all practical purposes.

As the life table ("Thirty American Offices" male) which was used in the preparation of this estimate is based upon the experience of insurance companies with a class of lives that were selected, to a certain extent at least, and as, for reasons that are more fully set forth below, the expectation of life of veterans of the civil war must be somewhat greater than that of nonveterans of the same ages, it is believed that the figures obtained from the use of this life table are more nearly correct than figures obtained by the use of a table based upon wholly unselected lives would have been. If, however, it is held by anyone that the expectation of life of the veterans is less than that of the class of lives upon which the life table used is constructed, then the results obtained in this estimate must be considered as maximum figures.

The following estimate is subject to the foregoing remarks and should be considered only in connection with them:

ARMY.

As shown by the latest official statement, the number of men furnished by the different States and Territories during the civil war, under calls from the President, was 2,778,304. Deducting from this the number of seamen and marines, 105,963, leaves a total of 2,672,341 credited to the Army. The strength of the Regular Army at the outbreak of the war was 16,422, but this number has not been taken into account in the calculation, because the majority of the men whom it represents, being professional soldiers, undoubtedly reenlisted or were commissioned in either the regular or volunteer service during the war, and are consequently included in the total number of credits. The strength of the Navy at the beginning of the war has been neglected in the calculation for the same reason.

No official compilation of the total number of reenlistments has ever been made, but it is estimated, from the best data now obtainable, that the reenlistments in the Army during the civil war numbered 543,393. Deducting this number from the total credited to

the Army leaves 2,128,948 as the number of individual soldiers serving in the war.

The number of deaths in the Army, according to the latest official compilation, was 359,528, and the number of actual deserters at large at the close of the war (making due allowance for those incorrectly reported as deserters) has been estimated at 117,247. Deducting the deaths and deserters leaves 1,652,173 as the probable number of individual soldiers who were alive at termination of service and were not deserters.

NAVY AND MARINE CORPS.

The total number of men credited to the several States as having been furnished to the Navy and Marine Corps during the civil war was 105,963. This figure is taken as the basis of calculation, and not the number of enlistments as reported by the Navy Department, which is believed to include a large number of transfers from the Army, and these have already been counted in the Army estimates.

No data are at hand from which to estimate the number of reenlistments, but assuming that their proportion was the same as in the Army, the total number of individuals in service was 84,417. No information has been obtained as to the actual number of desertions, but again assuming that the Army proportion is applicable, the number would be 4,649. The deaths as reported by the Bureau of Medicine and Surgery, numbered 4,588. Deducting the deaths and desertions leaves 75,180 as the probable number of seamen and marines who were alive at termination of service and were not deserters.

ARMY, NAVY, AND MARINE CORPS.

Combining the foregoing estimates, it appears that the total number of individuals in the military and naval service during the civil war was 2,213,365, and that of these 1,727,353 were alive at termination of service (deserters excluded).

As in the case of reenlistments, no official compilation has been made of the ages of the men in service at any period of the war. From statistics of the ages at enlistment of about 1,000,000 soldiers, collected by the United States Sanitary Commission, Dr. B. A. Gould, actuary of the commission, formed estimates of the number of men in each year of age. In the absence of better information, and assuming that the ages of soldiers, seamen, and marines were relatively the same, the tables published by Doctor Gould have been taken as a basis for calculating the appended table (No. 1), which shows the probable total number of survivors (excluding deserters) on June 30 of each year from 1890 to 1909, inclusive, and at the close of each quinquennial period from 1910 until none shall remain.

Table No. 2 shows the probable number of men who will arrive at the age of 62 years, or over, June 30, 1890, and of the probable number that will attain the age of 62 in each succeeding year, until practically all shall have passed that age.

SUMMARY.

(1) Estimated total number of survivors (deserters excluded) June 30, 1890.....	1,285,471
(2) Total number of men furnished during the war (credits).....	2,778,304
To Army.....	2,672,341
To Navy.....	105,963
(3) Estimated total number of reenlistments.....	564,939
In Army.....	543,393
In Navy.....	21,546
(4) Estimated total number of desertions.....	121,896
From Army.....	117,247
From Navy.....	4,649
(5) Total number of deaths.....	364,116
In Army.....	359,528
In Navy.....	4,588
(6) Estimated total number of individuals in service.....	2,213,365
In Army.....	2,128,948
In Navy.....	84,417
(7) Estimated total number of survivors at termination of service (deserters excluded)	1,727,353
In Army.....	1,652,173
In Navy.....	75,180

TABLE NO. 1.—TOTAL SURVIVORS.

Showing the probable total number of survivors of the civil war (excluding deserters) on June 30 of each year from 1890 to 1909, inclusive, and at the close of each quinquennial period thereafter until none shall remain.

Year.	Survivors.	Year.	Survivors.
1890.....	1,285,471	1904.....	858,002
1891.....	1,261,232	1905.....	820,687
1892.....	1,236,076	1906.....	782,722
1893.....	1,209,968	1907.....	744,196
1894.....	1,182,889	1908.....	705,197
1895.....	1,154,810	1909.....	665,832
1896.....	1,125,725	1910.....	626,231
1897.....	1,095,628	1915.....	429,727
1898.....	1,064,524	1920.....	251,727
1899.....	1,032,418	1925.....	116,073
1900.....	999,339	1930.....	37,033
1901.....	965,313	1935.....	6,296
1902.....	930,380	1940.....	340
1903.....	894,585	1945.....	0

TABLE NO. 2.—SURVIVORS BECOMING 62 YEARS OF AGE.

Showing the probable number of survivors of the civil war (excluding deserters) on June 30, 1890, the number who will be 62 years of age, or over, on that date; also the number who will attain 62 years of age after 1890, with the year in which they will reach that age.

Probable number of survivors June 30, 1890.....	1,285,471
Probable number of survivors 62 years of age or over June 30, 1890.....	149,531

Will live to be 62 years old.		Will live to be 62 years old.	
In year—	Number of men.	In year—	Number of men.
1891.....	20,817	1901.....	62,414
1892.....	22,692	1902.....	70,799
1893.....	24,891	1903.....	80,234
1894.....	27,480	1904.....	90,733
1895.....	30,530	1905.....	106,043
1896.....	34,073	1906.....	97,836
1897.....	38,203	1907.....	44,747
1898.....	43,025	1908.....	5,672
1899.....	48,611	1909.....	820
1900.....	55,042		

The life table which was used in the calculations involved in the foregoing estimate is based upon the experience of insurance companies with a selected class of lives, and its rates of mortality are somewhat lower than those of other tables that are based upon unselected lives. But, as suggested above, the veterans of the war may be considered to be a selected class from among whom, by the operation of the law of the survival of the fittest, those individuals of little endurance and tenacity of life have been eliminated either by the vicissitudes of the war or their subsequent results. In addition to this, the lot of the average veteran is very much better than that of the nonveteran, in that the former enjoys the benefit of liberal pension laws, is given preferment in municipal, State, and Federal employment, and is cared for by relief associations and in Soldiers' Homes when he needs such care. All of these favorable conditions combined must certainly tend to prolong the life of the class which enjoys their benefit, and there seems to be good ground for the belief that the expectation of life of veterans of the war, in later years at least, is greater than that of nonveterans of the same ages. And for this reason it is believed that the table used in the preparation of the estimate for 1890 and subsequent years has given more accurate results than would have been obtained by the use of a table whose rate of mortality is higher.

It should be observed also that in applying the life table to the determination of the number of survivors at various dates each group of individuals of the same age was dealt with separately, and no attempt was made to use an average age in any calculation. The inaccuracy of the results obtained by the application of a life table to an average age is so well known to those who are at all familiar with statistical matters that it would not be necessary to mention the subject here, were it not for the fact that since the publication of the estimate made by this office in 1890 several estimates have emanated from other sources in which it has been erroneously assumed that the average age of the survivors as determined by this office for a given period could be used as a basis for accurate calculations covering future periods. It is only necessary to say in this connection that, because of the greater rate of mortality among, and the resulting more rapid decrease in the number of, the survivors of the higher ages, the average age of the whole class does not increase as rapidly as the age of an individual member of it. For instance, as estimated in 1890, the average age of all survivors in 1865 was 28 years, whereas in 1895, thirty years later, the average age was only 57 years. The number of survivors on June 30, 1895, as obtained by separately applying the life table to each group of survivors of the same age, differs by more than 40,000 from the number obtained by using an average age in the calculation.

According to the estimate, the survivors of the late war (deserters excluded) should have numbered 1,154,810 on June 30, 1895; and if this figure is correct it should be supported by data obtainable from the records of the Pension Bureau.

It has been ascertained from the Commissioner of Pensions that 735,338 survivors of the war were borne on the pension roll on June 30, 1895; that 116,177 other survivors had claims pending, and that 150,209 "original invalid" claims were on the rejected or abandoned files of the Bureau. These figures include those who have been

pensioned for service in the Regular Army and Navy since the war, those who have died with rejected or abandoned claims on file, and some duplications in that class of claims. It is impossible to determine exactly how much of an allowance should be made for these factors, but from the best data obtainable it is estimated by this office that a reduction of 57,540 in the foregoing figures should be made in order to make them represent individual survivors of the civil war. Making this reduction, it appears that the records of the Pension Bureau account for 944,184 survivors on June 30, 1895.

It will be seen from the foregoing statement, then, that the number of survivors on June 30, 1895, as estimated by this office, is 210,626 in excess of the number that can be accounted for by the records of the Pension Bureau on that date; and if the estimate is correct this excess must represent the number of those who, up to June 30, 1895, had never made application for pension, and of whom, consequently, the Pension Bureau could have had no record on that date. This number is, and must always remain, an unknown quantity; but being freed, as it now is, from other obscuring factors, it can be considered by itself, and each one interested in the problem can pass his own judgment upon it.

It is believed that the number of survivors of the war who have never made application for pension is considerably larger than those who have given the question but little thought are accustomed to estimate it to be. There are several different classes of veterans who have not applied for pension. The first, and probably the largest, of these is made up of those who are yet comparatively young men, who are still vigorous and able-bodied, and who are free from disabilities or ailments that disqualify them in any degree for the performance of manual labor or the discharge of their accustomed duties. The fact that this class is a very large one will be better appreciated when it is considered that, according to the estimates of this office, the average age of all survivors of the war on June 30, 1895, was only 57 years, and, consequently (because of the preponderance of enlistments at the lower ages), at least half of them, or more than half a million in all, must have been younger than that, and many of them must have been considerably younger. In addition, there must be considered those of all ages who have never applied for pension because of their prosperous circumstances, or for sentimental reasons, or because they are aware that they are suffering from disabilities that are not pensionable under any law. Of course, there is no means of determining the total number of persons who are comprised in these four classes, but it needs but little reflection to convince anyone that the number must be a large one, and it would seem that it must equal, if it does not exceed, the 210,626, which must be added to the 944,184 considered to be accounted for by the records of the Pension Bureau on June 30, 1895, in order to make 1,154,810, which is the total number of survivors (deserters excluded) that is shown by the original estimate of this office for that date. This is in the proportion of 817.61 applicants for pension and 182.39 non-applicants per thousand of all pensionable survivors.

It does not seem unfair to assume that in every thousand honorably discharged survivors of the late war there were on June 30, 1895, one hundred and eighty-two who, for various reasons, had never made application for pension, and that the estimate of this

office as to the total number of survivors on that date is very nearly correct. And if the estimate is correct for the date in question it can be demonstrated to be equally correct for other dates covered by it.

But, as stated above, this question is one in the solution of which each inquirer can well exercise his own judgment. Those who believe that more than eight hundred and eighteen in every thousand of the honorably discharged survivors of the war had, on June 30, 1895, made application for pension must consider the estimate as to the total number of survivors on that date to be too large, whereas those who believe that less than eight hundred and eighteen per thousand had applied for pension on that date must consider the estimate too small.

A special enumeration of survivors was made during the census of 1890, and in a published statement of the Commissioner of Labor, in charge of the Eleventh Census (Senate Document No. 135, Fifty-fourth Congress, first session), the total number of survivors, as shown by the population schedules, is given as 1,034,073. But the census enumeration could not possibly have included all the survivors, because many of them were out of the country at the time, and many more must have failed to be enumerated as such for various reasons. It requires but a brief examination of the census figures to show that they fall far short of representing the total number of survivors in 1890, and that they can not be relied upon as the basis of any calculation for the future. If, as shown by the census report, there were 1,034,073 survivors of the civil war in 1890, of the ages ascertained by the census enumerators, this number should have fallen, according to the life tables, to 919,954 on June 30, 1895. But this last number is only 80,917 in excess of the number of survivors who were either on the pension rolls or had claims pending at that date, excluding regular army and navy pensioners and claimants who served since the war, and is *24,230 less* than the number that, as previously pointed out in this paper, can be considered to have been accounted for by the records of the Pension Office on that date, to say nothing of the very large number of those who had never applied for pension, and of whom, consequently, the Pension Office could have had no record. It is confidently believed, therefore, that the figures shown by the estimate made by this office are much more reliable than those shown by the census of 1890 as the basis of any calculation for the future.

The foregoing estimate of 1890, with the comments made thereon in 1896, is republished, there being no reason to believe that there are any data now available on which to base a more accurate estimate than the one heretofore made.

WAR DEPARTMENT,

THE MILITARY SECRETARY'S OFFICE,

May 15, 1905.







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